

IN THE CLAIMS:

All of the pending claims 1, 4-6, 9, and 10-12 are set forth below. The status of each claim is indicated with one of (cancelled), (currently amended), or (new). Please CANCEL claims 2, 3, 7, and 8 without prejudice or disclaimer. Please AMEND claims 1, 4-6, 9, and 10 and ADD new claims 11 and 12 in accordance with the following:

1. (currently amended) An animated creating/editing apparatus, comprising:
a three-dimensional model storing unit storing an object configuring an image of an animation as three-dimensional model information; and, wherein the three-dimensional model information has a tree structure configured by a plurality of hierarchies which represent constraint conditions of the three-dimensional model, and each of the hierarchies are composed of plural nodes which represent position/direction and shapes information of the three-dimensional model;

an operation instruction editing unit creating/editing an operation instructions sequence for creating/editing an animation by generating/editing an operation instruction sequence configured by an object operation instruction and an eye point operation instruction instructions which are operation instructions for the object, wherein the operation instructions sequence comprises object operation instructions and eye point operation instructions;

an interference detecting unit detecting an occurrence of interference between objects based on position/direction and shape information of the three-dimensional model information, which is caused by executing the object operation instruction;

an interference avoiding unit generating an object operation instruction to avoid the interference, if the occurrence of the interference is detected by said interference detecting unit;

a discontinuity detecting unit detecting an occurrence of discontinuous scenes, which is caused by executing the eye point operation instruction or the object operation instruction; and

a complementary instruction generating unit generating an object operation instruction or an eye point operation instruction to generate a scene which complements between the discontinuous scenes, if the occurrence of the discontinuous scenes is detected by said discontinuity detecting unit.

2. (cancelled)

3. (cancelled)

4. (currently amended) The animation creating/editing apparatus according to claim 1, wherein:

the three-dimensional model information holds a constraint condition between objects which represented by a node in a lower hierarchy of the three-dimensional model information is constrained by a node in a higher hierarchy; and

a constraint detecting unit detecting an object operation instruction which violates the constraint condition as an error is further comprised, wherein an unconstrained object is freely moved as far as it does not interfere with another object, and, a constrained object having a predetermined movable range is moved within said movable range as far as it does not interfere with another object.

5. (currently amended) The animation creating/editing apparatus according to claim 1, further comprising:

an editing rule storing unit storing editing rules to be observed for editing the object operation instructions sequence when an object operation instruction is inserted/deleted/moved in/from/within the operation instruction sequence, when an animation is edited; and

an operation instruction editing unit referencing the editing rules, and preventing/avoiding an operation if the operation for inserting /deleting/moving an object operation instruction which violates the editing rules in/from/within the operation instruction sequence is performed.

6. (currently amended) A program for causing a computer to execute a process, the process comprising:

storing an object configuring an image of an animation as three-dimensional model information in a first storing unit, wherein the three-dimensional model information has a tree structure configured by a plurality of hierarchies which represent constraint conditions of the three-dimensional model, and each of the hierarchies are composed of plural nodes which represent position/direction and shape information of the three-dimensional model; and

creating/editing an animation by ~~generating~~creating/editing an operation instruction sequence ~~configured by an object operation instruction and an eye point operation instruction, which are operation instructions for the object, wherein the operation instructions sequence~~ comprise object operation instructions and eye point operation instructions;

detecting an occurrence of interference between objects based on position/direction and shape information of the three-dimensional model information, which is caused by executing the object operation instruction;

generating an object operation instruction to avoid the interference, if the occurrence of the interference is detected;

detecting an occurrence of discontinuous scenes, which is caused by executing the eye point operation instruction or the object operation instruction; and

generating an object operation instruction or an eye point operation instruction to generate a scene which complements between the discontinuous scenes, if the occurrence of the discontinuous scenes is detected.

7. (cancelled)

8. (cancelled)

9. (currently amended) The program according to claim 6, the process further comprising:

holding a constraint condition between objects in the three-dimensional model information which represented by a node in a lower hierarchy of the three-dimensional model information is constrained by a node in a higher hierarchy; and

detecting an object operation instruction which violates the constraint condition as an error, wherein an unconstrained object is freely moved as far as it does not interfere with another object, and, a constrained object having a predetermined movable range is moved within said movable range as far as it does not interfere with another object.

10. (currently amended) The program according to claim 6, the process further comprising:

storing, in a second storing unit, editing rules to be observed for editing the object operation instructions sequence when an object operation instruction is inserted/deleted/moved in/from/within the operation instruction sequence, when an animation is edited, and

referencing the editing rules, and preventing/avoiding an operation if the operation for inserting/deleting/moving an object operation instruction which violates the editing rules in/from/within the operation instruction sequence is performed.

11. (new) The animation creating/editing apparatus according to claim 1, further comprising:

an object operating unit operates an object in a virtual space upon receipt of an input of

an object operation instruction from a user, wherein:

the interference detecting unit checks the interference between objects which accompanies the operation;

when the interference occurs, the interference avoiding unit modifies a move direction of an object to a direction where the interference is resolved, so that the interference is avoided;

when the interference cannot be avoided, the object operation instruction becomes an error;

when an object can be moved without causing interference, the object operation instruction is stored in a corresponding instruction sequence within the operation instruction storing unit via the instruction sequence selecting unit; and

the object operating unit performs a constraint deletion operation for an object by an operation for removing an object from a tree to which the object belongs to, and the object is released from the constraint of a parent object.

12. (new) The program according to claim 6, further comprising:

operating an object in a virtual space upon receipt of an input of an object operation instruction from a user;

checking the interference between objects which accompanies the operation;

when the interference occurs, modifying a move direction of an object to a direction where the interference is resolved, so that the interference is avoided;

wherein, when the interference cannot be avoided, the object operation instruction becomes an error;

wherein, when an object can be moved without causing interference, the object operation instruction is stored in a corresponding instruction sequence; and

performing a constraint deletion operation for an object by an operation for removing an object from a tree to which the object belongs to, and the object is released from the constraint of a parent object.